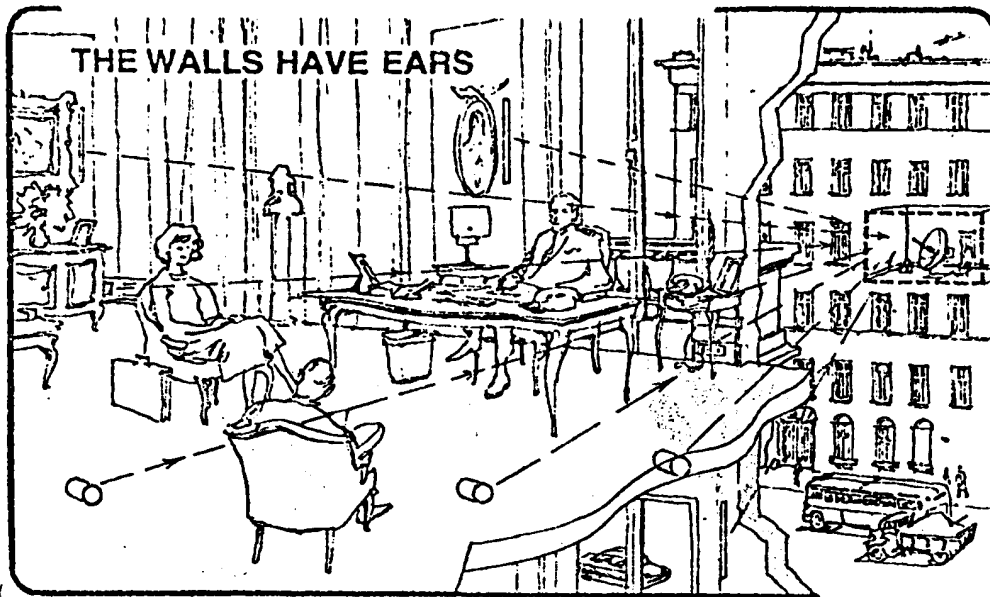




Now hear this: How microwaves may be used to snoop on U.S. Embassy

The Heat-Wave Spies

Electronic eavesdropping is a fact of life for foreigners in Russia, and diplomats, journalists and businessmen must assume from the first that they are somehow being recorded by the Soviets' indefatigable official snoopers. Routine sweeps of the U.S. Embassy in Moscow regularly turn up new listening devices, but last week the bugging business took on a bizarre new twist. U.S. Embassy experts who had monitored the building hinted that radiation from Soviet microwave surveillance devices could be physically harmful to key embassy personnel.

Word of the radiation peril leaked quickly through the diplomatic community in Moscow soon after U.S. Ambassador Walter J. Stoessel Jr. first warned his staff on Feb. 6. Officials insisted that casual visitors and people who live and work in the bottom seven stories of the ten-story, yellow stucco building on the Tchaikovsky Ring have nothing to fear from the reported radiation exposure. But they left the distinct impression that the 60 or so diplomats, communications experts, secretaries and marine guards who work on the building's top three floors could be at risk—an impression heightened by the arrival last week of a lab technician to take blood samples of embassy personnel.

The cause of the concern was microwave radiation, apparently aimed at the embassy's upper stories by radar-type dishes located behind heavily curtained windows or walls in nearby buildings. Microwaves are fairly short radio waves used routinely to cook food in microwave ovens and to carry radar messages and long-distance telephone communications. The effects of such radiation on human health are little known at present. But powerful microwave pulses, like

those from military radar, can burn human cells just as effectively as they cook meat—and experiments on monkeys at the National Institutes of Health suggest that large intensities of microwaves quickly affect the biological activity of the brain. But the effects of long exposure to relatively weak beams of the radiation—the kind the Russians are thought to be using—remain speculative. The possibilities range from excitability and insomnia to temporary sterility in men.

Vibrations: The most likely use of the microwaves in the embassy bugging involves devices known as resonators. These are instruments or surfaces that vibrate in response to pressure changes produced in the air by the spoken word; they can range from air conditioning ducts to light sockets to small cannisters or metal sheets hidden in the walls. Unlike conventional bugs, the resonators require no power sources; their vibrations in response to speech are simply picked up by the microwave beam as it reflects off them. Then the beam that reaches the receiver is treated electronically to reproduce the original speech, in much the same way that a record reproduces music.

Whatever the details of the system, the important factor for the health of the staff was the intensity of the microwaves—and that U.S. officials refused to reveal. Air Force Maj. Thomas Johnson, the embassy doctor, would only say that "I have not been able to confirm the existence of any symptomatology that would document the effects." But last week embassy staffers were installing metal screens in the upper windows, in an apparent effort to overcome both the bugging and its possible effects on health.

—PETER GWYNNE with ALFRED FRIENDLY JR. in Moscow and bureau reports